Utah Department of Transportation

Supplemental Drawings for

2008 Standard Specifications

FOR ROAD AND BRIDGE CONSTRUCTION

Issued May 8, 2008

Memorandum UTAH DEPARTMENT OF TRANSPORTATION

DATE: May 8, 2008

TO: Holders of Hard Copy of Standard Drawings

FROM: Barry Axelrod, CDT
Standards and Specifications

SUBJECT: Supplemental Drawing Distribution, dated May 8, 2008

Applicable files for the change are attached. Maintain these files as a supplemental update to the UDOT Standard Drawings, 2008 Edition. No pages are to be removed or replaced in the basic book, electronic or hard copy.

If you are in need of electronic copies of any Standard or Supplemental Drawing please refer to the Standards and Specifications Web site at http://www.udot.utah.gov/go/standardsandspecifications. From there select the **2008 Standards** subtopic.

If you have any questions or problems with the electronic files contact me at 801-964-4570, 801-631-8828 (cell), or by email at **baxelrod@utah.gov.**

Attachments

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UTAH DEPARTMENT OF TRANSPORTATION

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Listing of Supplemental Drawings

Issue Date: March 5, 2008

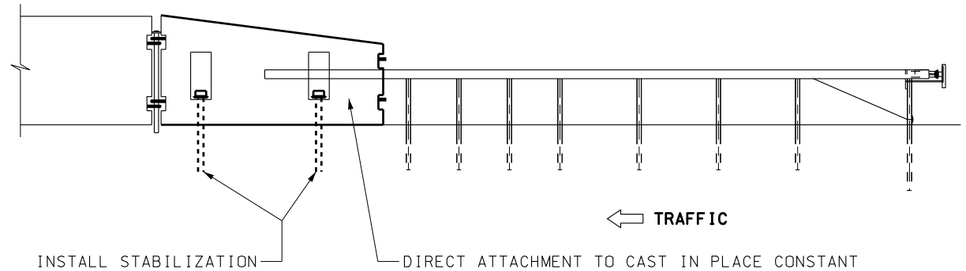
Revised February 28, 2008

CC 4	Details For Placement Crash Cushions Type A, B, and D
SL 18	Single Transformer Substation Details
SN 14C	Freeway Sign Foundation And Fuse Plate Requirements
ST 5	Painted Median And Auxiliary Lane Details

Issue Date: May 8, 2008

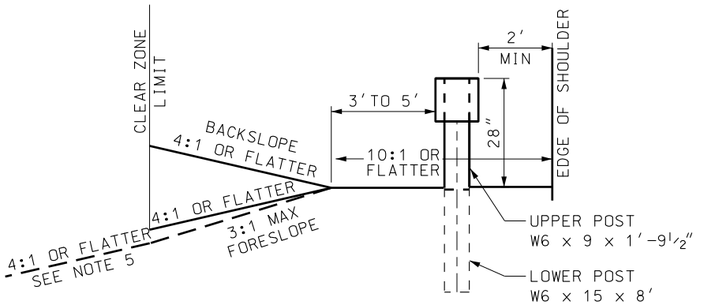
Revised April 24, 2008

CC 7B	Crash Cushion Type F BEAT-SSCC
DD 11	Rural Multi Lane Highways Other Than Freeways
DD 16	Embankment For Bridge Replacement
DD 17	Grade Separated Arterials Other Than Freeways 50 to 60 MPH

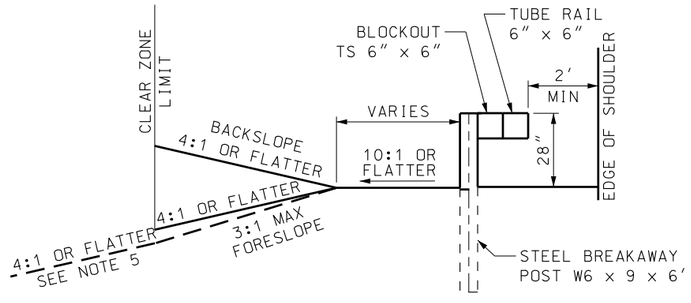


DETAIL WHEN SYSTEM IS INSTALLED WITH CONSTANT SLOPE BARRIER

(GROUND MOUNTED POST SHOWN, SURFACE MOUNTED STEEL BREAKAWAY POST ACCEPTABLE, SEE NOTE 4)



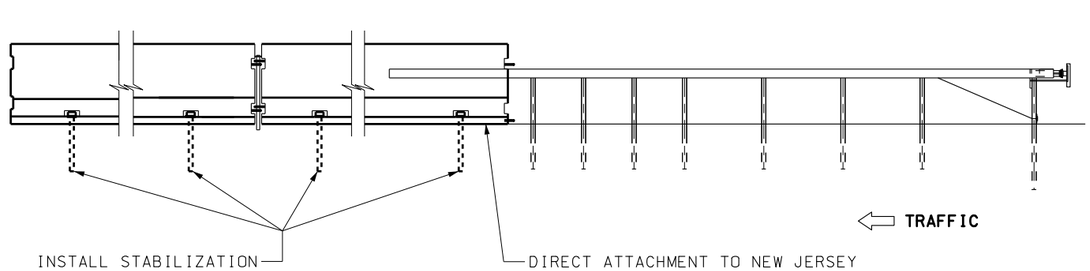
SECTION A–A
POST 1

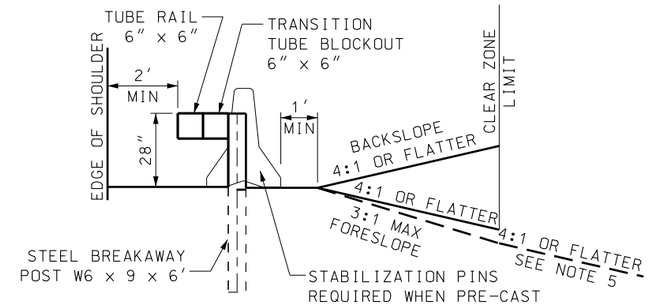


SECTION B–B
POSTS 2 TO POST 6

DETAIL WHEN SYSTEM IS INSTALLED WITH NEW JERSEY SHAPED BARRIER

(GROUND MOUNTED POST SHOWN, SURFACE MOUNTED STEEL BREAKAWAY POST ACCEPTABLE, SEE NOTE 4)





SECTION C–C
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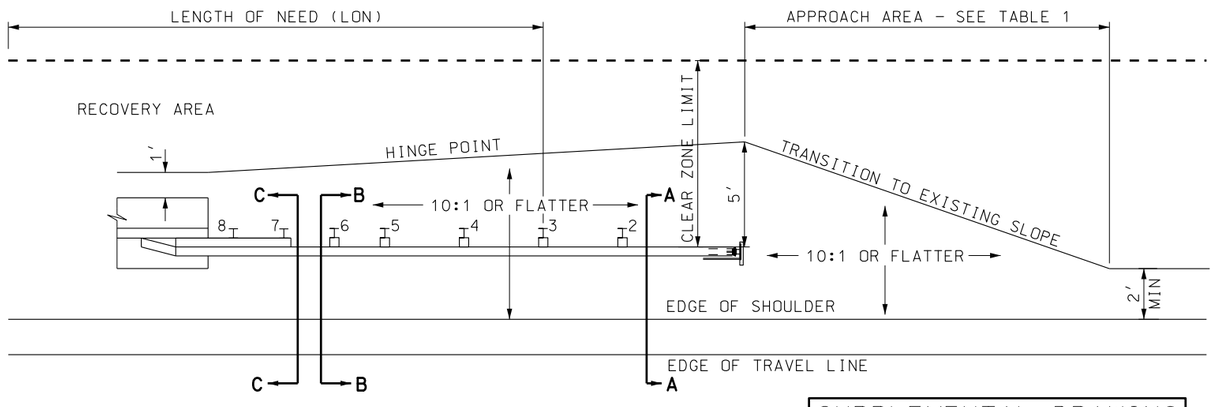
TABLE 1	
SPEED MPH	**TAPER**
LESS THAN 40	7:1
40 TO 55	10:1
60 TO 75	15:1



SUPPLEMENTAL DRAWING

NOTES FOR CRASH CUSHION TYPE F

1. THE BEAT-SSCC, MANUFACTURED BY ROAD SYSTEMS INC. SEE UDOT'S GUIDELINES FOR CRASH CUSHIONS FOR SPECIFIC SYSTEM DETAILS.
2. USE SYSTEM WHEN DIRECT ATTACHMENT TO BARRIER IS REQUIRED AND THERE IS LESS THAN 125 FEET OF LONGITUDINAL SPACE IN FRONT OF THE HAZARD. INSTALL SYSTEM AS PER UDOT'S AND MANUFACTURER'S SPECIFICATIONS.
3. ATTACH SYSTEM TRANSITION TO BARRIER OR BRIDGE PARAPET AS PER MANUFACTURER'S REQUIREMENTS.
4. HAVE SHOP DRAWING AVAILABLE ON SITE FOR REFERENCE DURING INSTALLATION.
5. THE BEAT-SSCC REQUIRES A GRADED AND COMPACTED SURFACE WHEN GROUND MOUNTED POSTS ARE USED. SURFACE MOUNTED POST OPTIONAL, USE MANUFACTURER'S SPECIFICATIONS FOR CONCRETE PAD, POSTS AND MOUNTING HARDWARE.
6. COMPLETE SLOPE PREPARATION PRIOR TO INSTALLING SYSTEM.
   A. USE 10:1 OR FLATTERSLOPES IN APPROACH AREA.
   B. USE 4:1 OR FLATTER FORESLOPE OR BACKSLOPE IN THE RECOVERY AREA.
      1) IF A 4:1 FORESLOPE IN RECOVERY AREA IS IMPRACTICAL USE A RECOVERY AREA AT THE TOE OF THE 3:1 FORESLOPE OF 4:1 OR FLATTER.
      2) MAXIMUM 4:1 BACKSLOPE TO THE CLEAR ZONE LIMIT IN THE RECOVERY AREA.
7. CLEAR RECOVERY AND APPROACH AREAS OF ANY FIXED OBJECTS.
   A. DO NOT PLACE SIGNS OR POLES IN APPROACH AREA.
   B. USE BREAKAWAY SIGNS OR POLES WHEN PLACED IN RECOVERY AREA. MAINTAIN A MINIMUM 10 FOOT CLEARANCE TO SYSTEM.
8. INSTALL REQUIRED MARKING AS PER STD DWG CC 1, TYPE G.
9. REFER TO THE CURRENT EDITION OF THE AASHTO ROADSIDE DESIGN GUIDE TO DETERMINE LENGTH OF NEED (LON) AND CLEAR ZONE REQUIREMENTS.

REVISIONS

NO.	DATE	APPR.	REMARKS
1	04/24/08	GS	ADDED MISSING INFORMATION.

UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

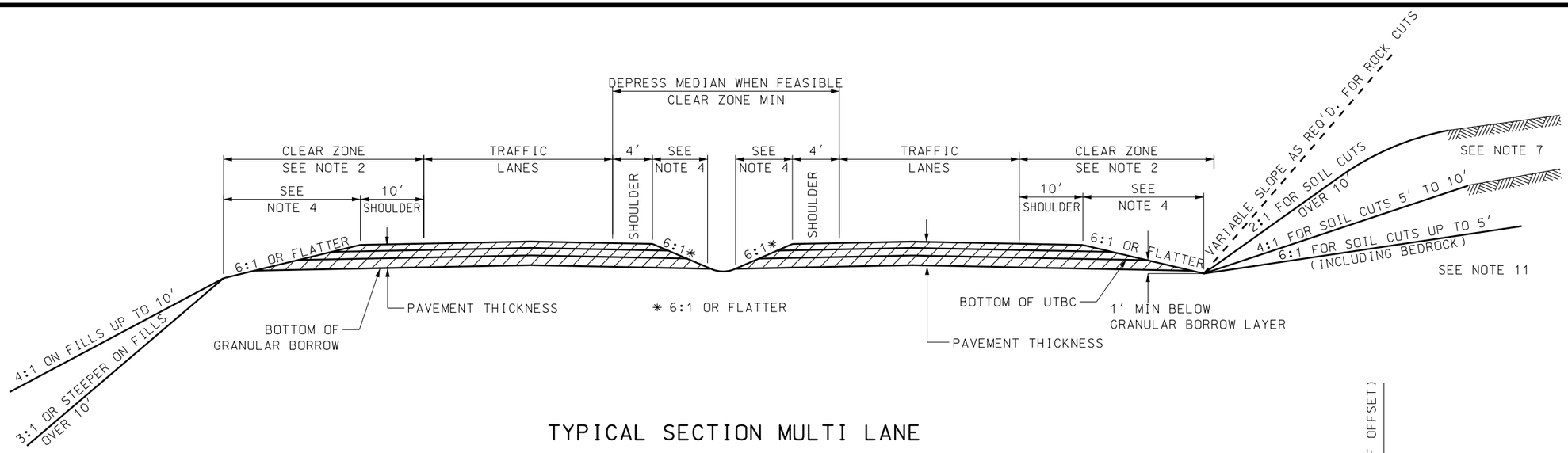
RECOMMENDED FOR APPROVAL — APR.24.2008 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — APR.24.2008 DATE
DEPUTY DIRECTOR

CRASH CUSHION TYPE F BEAT-SSCC

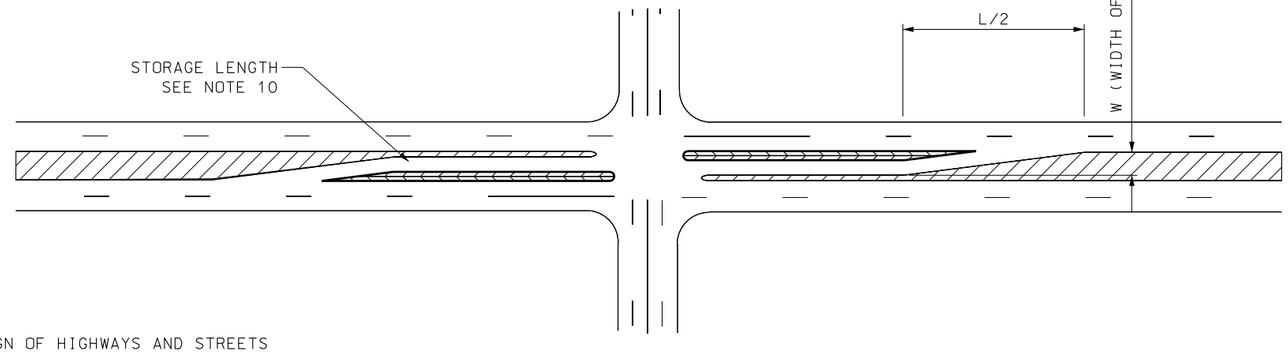
STANDARD DRAWING TITLE

STD DWG
CC 7B

DGN File:L:\Standard_Drawings\Imperial\2008Approved\x_Supplemental_Issues\xSupp2Approved\CC07B.dgn
01-MAY-2008



TYPICAL SECTION MULTI LANE



TYPICAL MEDIAN LEFT TURN LANE
FOR MEDIANS GREATER THAN 28′

NOTES:

1. USE THE CURRENT EDITION OF AASHTO A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR DESIGN OF ROADWAY ELEMENTS NOT SHOWN ON THIS STANDARD DRAWING.
2. USE THE CURRENT EDITION OF AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS. CLEAR ZONE MAY EXTEND INTO CUT OR FILL SLOPES.
3. STANDARDS SHOWN ARE RECOMMENDED VALUES. EXCEED STANDARDS IF CONDITIONS PERMIT.
4. IN FILL CONDITIONS MAINTAIN A CONSTANT SLOPE FROM THE EDGE OF THE PAVEMENT TO THE OUTER EDGE OF THE CLEAR ZONE. IN CUT CONDITIONS MAINTAIN A CONSTANT SLOPE FROM THE EDGE OF THE PAVEMENT TO THE BOTTOM OF THE GRANULAR BORROW LAYER OR PROVIDE OTHER MEASURES TO DRAIN ALL PAVEMENT THICKNESS LAYERS. MAINTAIN A MINIMUM OF ONE FOOT VERTICAL DISTANCE FROM THE BOTTOM OF THE GRANULAR BORROW LAYER TO THE BOTTOM OF THE CUT DITCH. THERE MAY BE CUT FORESLOPES AND BACKSLOPES IN THE CLEAR ZONE.
5. TRANSITION FROM FLAT TO STEEPER CUT AND FILL SLOPES IN SUFFICIENT DISTANCE TO PROVIDE A NATURAL PLEASING APPEARANCE.
6. PAVEMENT THICKNESS CONSISTS OF HARD SURFACING, UTBC AND GRANULAR BORROW (IF USED).
7. INSTALL SURFACE DITCH (OPTIONAL) WHEN SHEET FLOW DRAINAGE IS TOWARDS CUT SLOPE. DRAIN SURFACE DITCH TO NATURAL DRAINAGE OR ROADSIDE DITCH. PROVIDE OTHER MEASURES TO PREVENT ERODING CUT SLOPES IF SURFACE DITCH IS OMITTED. SEE STD DWG DD 2 FOR DETAILS.
8. SEE STD DWG DD 4 FOR TYPICAL DETAILS FOR SECTION ON CURVE AND SECTION ON TANGENT. SEE STD DWG DD 2 FOR TYPICAL SECTION ON DITCH FLARING AND BENCHED SLOPE.
9. USE FLAT MEDIAN WHERE MEDIAN IS NOT OF SUFFICIENT WIDTH TO PROVIDE A DEPTH OF 1 FOOT BELOW THE PAVEMENT THICKNESS. REDUCE SLOPE TO 10:1 OR LESS AND PAVE THE ENTIRE AREA.
10. USE A CAPACITY ANALYSIS TO DETERMINE THE LENGTH OF STORAGE REQUIRED FOR TURN LANE. USE A MINIMUM LENGTH OF 100 FEET.
11. THE SLOPES SHOWN FOR CUT AND FILL HEIGHTS ARE SUGGESTED VALUES. SLOPES MAY DEVIATE FROM THESE SUGGESTED VALUES TO MEET PROJECT SPECIFIC REQUIREMENTS.
12. RANGE OF SUPERELEVATION IS THE PAVED WIDTH.
13. USE 2% MINIMUM CROSS SLOPES.
14. PLACE ADVERSE SLOPE BREAKS AT SHOULDER OR LANE LINES.
15. USE 6% MAXIMUM ALGERBRAIC DIFFERENCIAL FOR SLOPE BREAKS BETWEEN SHOULDER AND LANE LINES.
16. USE 4% MAXIMUM ALGERBRAIC DIFFERENCIAL FOR SLOPE BREAKS BETWEEN LANE LINES.
17. FOR TAPER LENGTH "L" SEE TABLE I ON STD DWG DD 3.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	04/24/08	BA	CORRECTED NOTE 4 FOR GRANULAR BORROW LAYER.

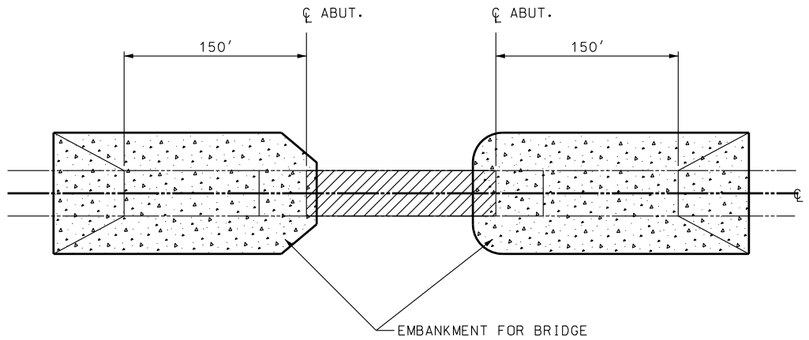
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — APR.24.2008 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — APR.24.2008 DATE
DEPUTY DIRECTOR

RURAL
MULTI LANE HIGHWAYS
OTHER THAN FREEWAYS

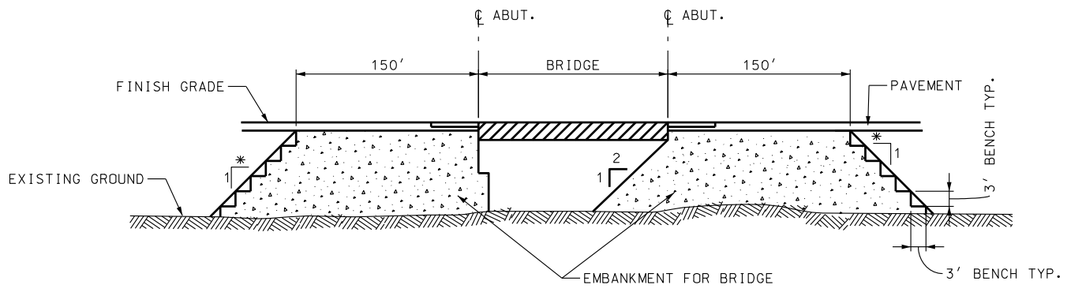
STANDARD DRAWING TITLE

STD DWG
DD 11

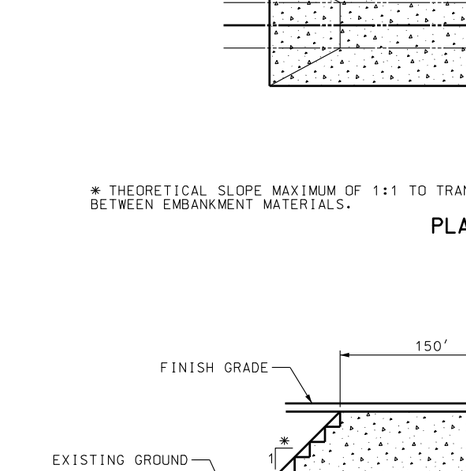


* THEORETICAL SLOPE MAXIMUM OF 1:1 TO TRANSITION BETWEEN EMBANKMENT MATERIALS.

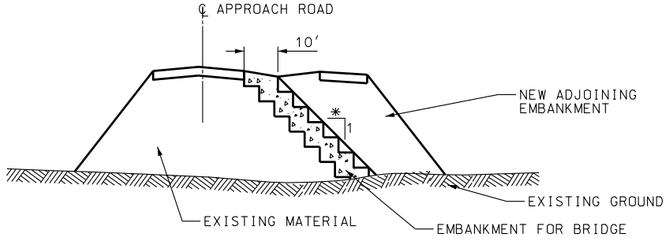
PLAN VIEW APPROACH EMBANKMENTS



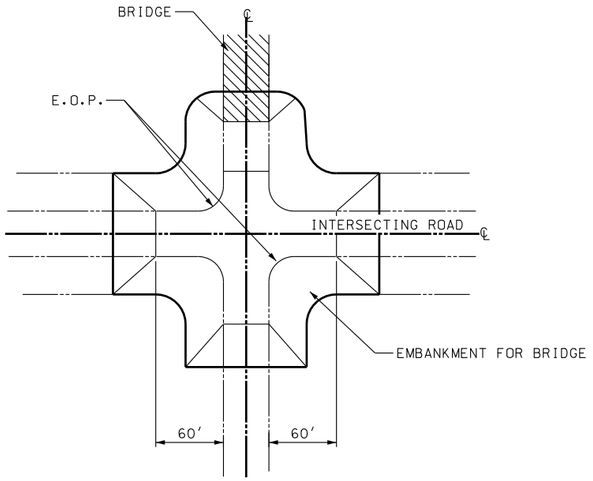
CL PROFILE VIEW APPROACH EMBANKMENTS



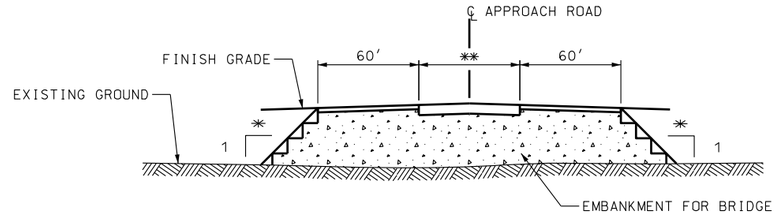
PLAN VIEW ADJOINING EMBANKMENTS



SECTION A-A VIEW



PLAN VIEW INTERSECTING ROADWAY EMBANKMENTS



CL PROFILE VIEW INTERSECTING ROADWAY EMBANKMENTS

** INDICATES EDGE OF PAVEMENT TO EDGE OF PAVEMENT DIMENSION.

* THEORETICAL SLOPE MAXIMUM OF 1:1 TO TRANSITION BETWEEN EMBANKMENT MATERIALS.

SUPPLEMENTAL DRAWING

REVISIONS

NO.	DATE	APPR.	REMARKS
1	04/24/08	RM	CORRECTED EMBANKMENT LOCATION.

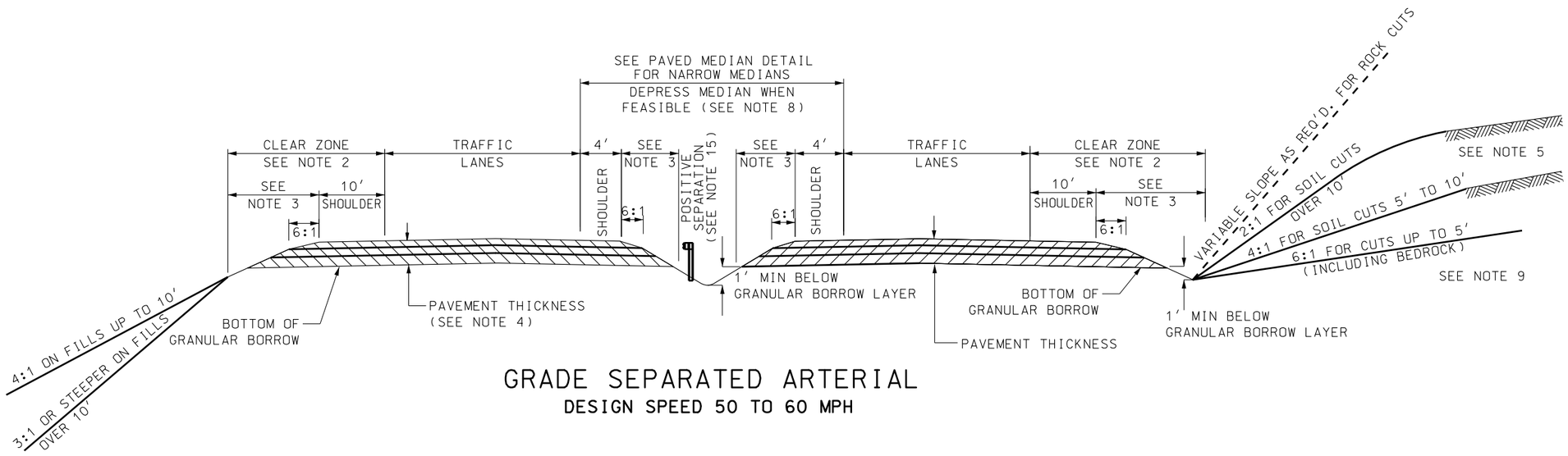
UTAH DEPARTMENT OF TRANSPORTATION
STANDARD DRAWINGS FOR ROAD AND BRIDGE CONSTRUCTION
SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — APR.24.2008 DATE
CHAIRMAN STANDARDS COMMITTEE
APPROVED — APR.24.2008 DATE
DEPUTY DIRECTOR

EMBANKMENT FOR BRIDGE PLACEMENT

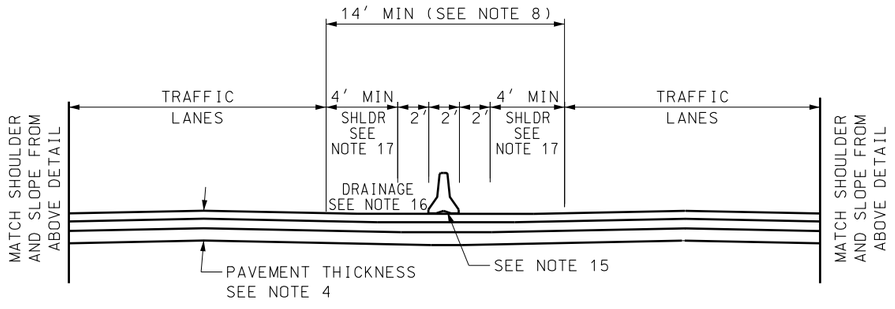
STANDARD DRAWING TITLE

STD DWG
DD 16



GRADE SEPARATED ARTERIAL

DESIGN SPEED 50 TO 60 MPH



PAVED MEDIAN DETAIL

NOTES:

1. USE THE CURRENT EDITION OF AASHTO: A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS FOR DESIGN OF ROADWAY ELEMENTS NOT SHOWN ON THIS STANDARD DRAWING.
2. USE THE CURRENT EDITION OF AASHTO ROADSIDE DESIGN GUIDE FOR CLEAR ZONE REQUIREMENTS. CLEAR ZONE MAY EXTEND INTO CUT OR FILL SLOPES.
3. MAINTAIN A 6:1 SLOPE FROM TOP OF PAVEMENT TO TOP OF UTBC. MAINTAIN CLEAR ZONE COMPLIANT SLOPES FROM THE TOP OF THE UTBC TO THE OUTER EDGE OF THE CLEAR ZONE IN FILL CONDITIONS. MAINTAIN A CONSTANT SLOPE FROM THE TOP OF THE UTBC TO THE BOTTOM OF THE GRANULAR BORROW LAYER OR PROVIDE OTHER MEASURES TO DRAIN ALL PAVEMENT THICKNESS LAYERS IN CUT CONDITIONS. MAINTAIN A MINIMUM OF ONE FOOT VERTICAL DISTANCE FROM THE BOTTOM OF THE GRANULAR BORROW LAYER TO THE BOTTOM OF THE CUT DITCH. THERE MAY BE CUT FORESLOPES AND BACKSLOPES IN THE CLEAR ZONE.
4. PAVEMENT THICKNESS CONSISTS OF HARD SURFACING, UTBC, AND GRANULAR BORROW.
5. INSTALL SURFACE DITCH (OPTIONAL) WHEN SHEET FLOW DRAINAGE IS TOWARDS CUT SLOPE. DRAIN SURFACE DITCH TO NATURAL DRAINAGE OR ROADSIDE DITCH. PROVIDE OTHER MEASURES TO PREVENT ERODING CUT SLOPES IF SURFACE DITCH IS OMITTED. SEE STD DWG DD 2 FOR DETAILS. ALSO SEE SLOPE ROUNDING DETAILS IN ROADWAY DESIGN MANUAL OF INSTRUCTION.
6. SEE STD DWG DD 4 FOR TYPICAL DETAILS FOR SECTION ON CURVE AND SECTION ON TANGENT.
7. SEE STD DWG DD 2 FOR TYPICAL SECTION ON DITCH FLARING AND BENCHED SLOPE.
8. USE FLAT PAVED MEDIAN (10:1 OR FLATTER) WHERE MEDIAN IS NOT OF SUFFICIENT WIDTH TO PROVIDE A DEPTH OF 1 FOOT BELOW THE PAVEMENT THICKNESS.
9. THE SLOPES SHOWN FOR CUT AND FILL HEIGHTS ARE SUGGESTED VALUES. SLOPES MAY DEVIATE FROM THESE SUGGESTED VALUES TO MEET PROJECT SPECIFIC REQUIREMENTS.
10. RANGE OF SUPERELEVATION IS THE PAVED WIDTH.
11. USE 2% MINIMUM CROSS SLOPES.
12. PLACE ADVERSE SLOPE BREAKS AT SHOULDER OR LANE LINES IF APPLICABLE.
13. USE 6% MAXIMUM ALGEBRAIC DIFFERENCE FOR SLOPE BREAKS BETWEEN SHOULDER AND LANE LINES.
14. USE 4% MAXIMUM ALGEBRAIC DIFFERENCE FOR SLOPE BREAKS BETWEEN LANE LINES.
15. POSITIVE SEPARATION IS REQUIRED FOR MEDIAN WIDTHS LESS THAN 50'. USE ANY ACCEPTABLE POSITIVE SEPARATION.
16. PROVIDE UNDERGROUND DRAINAGE AT PAVED MEDIAN IF ROADWAYS HAVE A BREAK IN SLOPE THAT DIVERTS WATER TO THE MEDIAN.
17. USE MINIMUM 4' MEDIAN SHOULDERS (8' DESIRABLE) FOR UP TO TWO TRAFFIC LANES IN EACH DIRECTION. USE MINIMUM 8' MEDIAN SHOULDERS FOR THREE OR MORE TRAFFIC LANES.

SUPPLEMENTAL DRAWING

NO.	DATE	APPR.	REMARKS
1	04-24-08	RM	NEW DRAWING

UTAH DEPARTMENT OF TRANSPORTATION
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SALT LAKE CITY, UTAH

RECOMMENDED FOR APPROVAL — APR.24.2008 DATE
CHAIRMAN STANDARDS COMMITTEE APPROVED — APR.24.2008 DATE
DEPUTY DIRECTOR

GRADE SEPARATED ARTERIALS OTHER THAN FREEWAYS 50 TO 60 MPH

STANDARD DRAWING TITLE

STD DWG
DD 17

01-MAY-2008 DGN File: L:\Standard Drawings\Imperial\2008Approved\w_Supplemental Issues\w_Supp2Approved\DD17.dgn